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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS**

RULE 351

ORGANIC LIQUID TRANSFER TO AND FROM BULK TANKS

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds (VOCs) from the ~~loading~~ transfer of organic liquids to and from bulk storage tanks.

~~102 APPLICABILITY: This rule is applicable to the transfer of organic liquids having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual loading conditions. It regulates transfers at bulk terminals and bulk plants from stationary storage tanks to delivery vessels and from delivery vessels to stationary storage tanks.~~

102 APPLICABILITY: This rule applies to the control of VOC vapors arising from the bulk transfer of gasoline and to the bulk transfer of any organic liquid that both contains by mass at least 2% VOCs and has a vapor pressure of at least 1.25 pounds per square inch (psi) (64 mm Hg) at either 100° Fahrenheit (37.8°C) or at its temperature of transfer if heated by a device to greater than 100°F. This rule is applicable to transfers at bulk terminals, bulk plants, chemical storage, and distribution facilities, and to industrial bulk tanks. This rule also applies to switch loading where gasoline or oxygenate vapors- are displaced by onloading diesel or turbine fuel.

102.1 Note that New Source Performance Standards (NSPS), as listed in Rule 360, and National Emission Standard for Hazardous Air Pollutants (NESHAPs), as listed in Rule 370, may also be applicable.

102.2 The provisions of Sections 300, 400, and 500 of this rule do not apply to VOL transfers from the following tanks:

a. A tank of less than 251 gallons (950 L) capacity:

b. Any tank which dispenses fuel into a fuel tank that is connected to an engine, except for a tank that also serves as a bulk tank.

c. Any tank(s) located at a farm.

d. Tanks addressed by Rule 349, "Pharmaceutical, Cosmetic, and Vitamin Manufacturing Operations".

e. Delivery vessels not used as stationary bulk storage tanks.

102.3 The provisions of Sections 300, 400, and 500 of this rule are not applicable to the transfer of the following liquids:

a. The following petroleum products below 150° F (65.6) that (outside of combinations with others in this listing) are not combined with any other material: Diesel fuels #1 and #2, heating fuels #1 through #6, turbine fuels, engine lubricants, motor oil with a rating of SAE 5 or more, hydraulic fluid, and kerosene;

b. Waste oil having a flashpoint greater than 100° F under the conditions of its transfer.

c. Liquids that are beverages or foods, or their immediate precursors intended for their manufacture.

d. Solutions or mixtures that are made by mixing with water only odorless solid(s) containing no fluid.

e. Waste water.

102.4 The provisions of Sections 300, 400, and 500, inclusive, do not apply to the transfer of liquefied gases (such as propane) from a pressure tank designed to operate, maintained to operate, and operated without emissions at pressures exceeding 30 psig (206 k Pascals).

SECTION 200 - DEFINITIONS: For the purposes of this rule, the following definitions shall apply:

2 **ACTIONABLE VAPOR-ESCAPE CLUSTER (A V E C)** – A vapor-loss condition of stationary equipment in which there are at least 6 simultaneous VOC-vapor escapes out of an uninterrupted space, each escape within 20 feet of another and each escape registering a Lower Explosive Limit (LEL) value between 10 and 20 percent on a CGD or 5,000 to 9999 ppmv on an OVA, in a pair of readings, performed according to subsections 50 . and 50 .

20 **APPROVED BULK-TANK STAGE I VAPOR CONTROL SYSTEM** - Any vapor handling system that is approved in writing by the Control Officer and is capable of capturing VOC vapor displaced during delivery both into and out of a bulk storage tank, while remaining vapor-tight. This excludes normal venting via the pressure-relief valve of a properly designed and functioning system.

20 **BOTTOM LOADING** –The process of transferring liquid only through loading points at the bottom of a vessel while vapors are displaced at the top of the vessel into a vapor collection system.

20 **BULK FACILITY** – A loading facility that is either a bulk plant, a bulk terminal, or a combination of both.

~~**201** **BULK PLANT** – Any loading facility at which gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual storage conditions~~

~~are received from delivery vessels for storage in on-site stationary tanks, and from which such liquids also are transferred to delivery vessels.~~

~~20~~ **BULK PLANT** - Any loading facility at which gasoline and/or other volatile organic liquids (VOL) are received from delivery vessels for storage in on-site stationary tanks, and from which such liquid is later transferred to outgoing delivery vessels. If a facility receives more than 6,000,000 gallons of gasoline or of non-gasoline VOL in any continuous 12-month period, the facility is deemed a BULK TERMINAL.

~~202~~ **BULK TANK** — Any stationary storage tank serving a loading rack which loads delivery vessels with organic liquids.

~~20~~ **BULK TANK** - Any storage tank greater than 250 gallons capacity that contains VOC and meets any of the following descriptions:

~~20 .1~~ Tank directly serves a loading rack or system that loads delivery vessels or containers over 5 gallons (19 Liters) with gasoline or other VOL; or

~~20 .2~~ Tank is plumbed to supply a tank that directly serves a loading rack or loading system; or

~~20 .3~~ Tank is not a fuel-dispensing tank, and either supplies a VOL to a product or process that is not included in §205.1 or §205.2, or holds a VOL for sale or distribution.

~~203~~ **BULK TERMINAL** — Any primary distributing loading facility which has ever received in any consecutive 30-day period over 600,000 gallons (2,271,180 L) of gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions; or any loading facility where delivery of such liquids to the facility is primarily by pipeline.

~~20~~ **BULK TERMINAL** - Any primary distributing loading facility where the gasoline arrives primarily by pipeline, or that has received more than 6,000,000 gallons (22,713,000 L) of VOL, including gasoline, in any calendar year since January 1, 1990.

~~2~~ **DEDICATED DIESEL/JET TRANSFER FACILITY** – A loading facility at which diesel or turbine fuel is loaded, but no gasoline or VOL is stored or loaded.

~~2~~ ~~204~~ **DELIVERY VESSEL** - Any vehicular-mounted container such as a railroad tank car, tanker truck, tank trailer, cargo tank, or any other tire mounted mobile container used to transport gasoline or other volatile organic liquids. This includes any hoses the vessel carries through which deliveries are made.

~~20~~ **EMISSION CONTROL SYSTEM (ECS)** - A system, approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions of volatile organic compounds. Such system consists of an emissions collection and an emissions processing subsystem.

~~205~~ **DISPENSING TANK** — Any stationary tank which dispenses organic liquid fuel directly into the fuel tanks of motor vehicles including aircraft.

~~206 EXCESS ORGANIC LIQUID DRAINAGE – More than 10 milliliters (0.34 fluid ounces) per disconnect.~~

2xx Excess VOL Drainage From A Non-Dry-Break Coupling At Bulk Plants – (See §504 for measurement details) A volume of gasoline or VOL escaping from the end of a loading hose's coupling, that is not a dry-break coupling, during one disconnection – including immediately after disconnection – that meets either of the following criteria:
2xx.1 Its volume exceeds 10 milliliters (2 teaspoons); or

2xx.2 The perimeter of the wet area caused by the escape entirely encompasses a circle 12 inches (30.5 cm) in diameter.

2xx.3 Excess VOL drainage is not a spill.

2yy EXCESS VOL DRAINAGE ON DRY-BREAK CONNECTIONS - A volume of gasoline or VOL escaping from the end of a dry-break loading connection to the ground during disconnection(s) that meets any one of the following criteria, *as measured per §504*:

2yy.1 Any single disconnection leading to an escape of VOL that either exceeds a volume of 30 mL (2 tablespoons) or the escape wets an entire area in excess of a 2 foot diameter circle in all directions.

2yy.2 Three consecutive disconnections by the same arm, each producing either an escape exceeding 10 mL (2 teaspoons), or the escape wets an area in excess of a 1 foot diameter circle in all directions.

2yy.3 VOL drainage or escape from a dry break disconnection is not a spill.

2 FUEL-DISPENSING TANK – Any stationary tank that dispenses VOL into a motorized vehicle's fuel-tank to fuel the vehicle's motor/engine. This includes aircraft.

~~207 FUGITIVE LIQUID LEAK – An organic liquid leak of more than three drops per minute from any single leak source other than the disconnect operation of liquid fill line and vapor line.~~

~~208 GAS TIGHT – Having no leak of gaseous organic compound(s) exceeding 10,000 ppm above background when measurements are made using EPA Method 21 with a methane calibration standard.~~

2 GAS TIGHT – A condition in which surfaces being tested for VOC-vapor escapes show no leak of gaseous organic compound(s) exceeding 1000 ppm above background when measurements are made using EPA Method 21 with an instrument accurately calibrated with methane, pursuant to subsections 502.4 and 503.1c.

2 GASOLINE - Any petroleum distillate or blend of petroleum distillate with other combustible liquid(s), such as alcohol, that is used as a fuel for internal combustion engines and has a vapor pressure at 100°F (37.8°C) between 4.0 and 14.7 psi (200 - 760 mm Hg) as determined by the applicable test method indicated in subsection 502.6.

- ~~209~~ ~~GASOLINE~~ — Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.
- ~~210~~ ~~GASOLINE DISPENSING OPERATION~~ — All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person or persons under common control.
- 2 **GASOLINE VAPORS** — Gaseous substances that have evaporated from liquid gasoline and that are usually found in mixture with air. Included are any droplets of liquid gasoline or of gasoline vapor condensate that are entrained by the vapor.
- 2 **LEAK FREE** - Having no escape of VOC-containing liquid exceeding 3 drops per minute from any source from any equipment. This excludes the disconnect operation of a liquid fill line or a vapor line.
- 2 **LOADING** — A liquid filling operation that partially or completely fills a vessel for the primary purpose of transporting the liquid. It is not loading if the primary purpose of transfer is either taking a measurement or removing unwanted VOL from a tank, pipe, or containment to enable work being done on it.
- 2 ~~211~~ **LOADING FACILITY** - Any operation or facility, such as a gasoline storage tank farm, pipeline terminal, bulk plant, or loading dock or combination thereof, where VOLs are transferred or loaded into or out of delivery vessels for future distribution. Included are all related pollutant-emitting activities that are located on one or more contiguous or adjacent properties and that are under the control of the same person or persons.
- 2 **LOADING RACK** — An aggregation or combination of gasoline loading equipment spatially arranged and collectively energized in such a way as to allow all loading outlets/arms in the combination to be connected to a single delivery vessel, truck or trailer, parked in a specified loading space. Typically, 2 or more outlet/arms can be connected and loading the delivery vessel simultaneously.
- 2 **LOWER EXPLOSIVE LIMIT (LEL)** — The lowest concentration of a combustible gas in air at standard conditions that will ignite with a spark. For example, the LEL of methane is 50,000 parts per million by volume.
- 2 **NON-PRECURSOR ORGANIC COMPOUND** - Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as “exempt”. A listing of the compounds is found in Rule 100 of these Air Pollution Control Rules and Regulations.
- ~~212~~ ~~OFFSET FILL LINE~~ — Any organic liquid fill line (piping and fittings) which contains one or more bends.
- 2 ~~213~~ **ORGANIC LIQUID** - Any organic compound that exists as a liquid under any actual conditions of use, transport or storage.

- 2 ORGANIC VAPOR ANALYZER (O V A)– A precision instrument that is capable of reading concentrations of gases to within 50 parts per million or less. When an OVA is used pursuant to this rule for detecting the concentration of VOC, it shall be calibrated using a methane standard.
- 2 OXYGENATE – Any substance that contains a substantial proportion of chemically bound oxygen and is used as an additive in gasoline to reduce pollution; for such use, the oxygenate portion typically exceeds 5%, by weight.
- 2 PORTABLE BULK CONTAINER – A self-contained vessel, tank, tote, or other durable container that is typically hauled as cargo in a truck or railcar and which contains VOL. The container is typically delivered to a facility, set into a stabilized position, and VOL is transferred from it into containers larger than 5 gallons (19 L).
- 2 214 STATIONARY STORAGE TANK - Any tank, reservoir or other container used to store, but not transport, organic liquids VOLS.
- 2 215 SUBMERGED FILL PIPE –Any discharge pipe or nozzle which meets the applicable specification as follows: A pipe, tube, or nozzle – designed as a conduit for filling a tank – having no openings in its sides through which entering VOL escapes, and positioned such that the lower end is totally covered by the entering liquid when the liquid has reached a level 6 inches (15 cm) from the bottom of the tank (or tank compartment served by the fill-pipe.
- 215.1 Top-Filled Or Bottom-Filled Tanks: The end of the discharge pipe or nozzle is totally submerged when the liquid level is six inches (15 cm) from the bottom of the tank.
- 215.2 Side-Filled: The end of the discharge pipe or nozzle is totally submerged when the liquid level is 18 inches (46 cm) from the bottom of the tank.
- 2 SWITCH LOADING - Loading diesel fuel or any organic liquid not subject to this rule into a delivery vessel whose previous load was a VOL subject to this rule.
- 216 SWITCH LOADING – Loading diesel fuel into a delivery vessel whose previous load was gasoline; or loading any organic liquid not subject to this rule into a delivery vessel whose previous load was an organic liquid subject to this rule.
- 217 TRUE VAPOR PRESSURE (TVP) – Absolute vapor pressure of a liquid at its existing temperature of storage and/or handling.
- 2 VAPOR BALANCE EQUIPMENT – Equipment, usually employing hoses and pipes, that directs organic-vapor displaced from a tank receiving organic liquid into the head-space of the tank delivering the organic liquid.
- 218 VAPOR COLLECTION/PROCESSING SYSTEM – A vapor loss control device consisting of a vapor gathering subsystem capable of collecting the organic vapors and organic gases plus a second subsystem capable of processing such vapors and gases,

~~preventing at least 95 percent of the volatile organic compounds entering it from entering the atmosphere.~~

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- 2 VAPOR LEAK** – An escape of VOC-containing vapor at a concentration that a CGD shows to be at least 20% of the lower explosive limit (LEL) or that an OVA shows to be at least 10,000 ppmv as methane, when either type device is used according to §503.5.
- ~~219—2~~ **VAPOR LOSS CONTROL DEVICE** - Any piping, hoses, equipment, and devices that are used to collect, store, contain, and/or retain organic vapors at a bulk terminal, bulk plant, service station or other operation handling ~~gasoline and/or other organic liquids~~ VOLs.
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- ~~220~~ **VAPOR TIGHT** – A condition where ~~no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.~~
- 2 VAPOR TIGHT** - An attribute of a surface. A surface or object is Vapor Tight when all of its external surface area from which VOC could possibly escape is surveyed with either an organic vapor analyzer (OVA) or a combustible gas detector (CGD) that is deployed for vapor-detection (per §503.5) and such OVA or CGD shows either less than 10,000 ppm when calibrated with methane, or less than 20 percent of the lower explosive limit (LEL) when calibrated according to the manufacturer's instructions. The term, Vapor Tight, does not apply to an actionable vapor-escape cluster.
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- 2 V O L (VOLATILE ORGANIC LIQUID)** – VOL includes Gasoline and includes any VOC-containing liquid that has an organic-vapor pressure of at least 1.25 psi (64.5 mm Hg) at either 100° F (37.8° C) or at its maximum temperature if heated by a device above 100° F. Vapor pressure shall be determined by test methods specified in subsections 502.6 and 503.4.
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- 2 VOLATILE ORGANIC COMPOUND (VOC)** - Any organic compound that participates in photochemical reactions, except non-precursor organic compounds.

SECTION 300 - STANDARDS:

- 301 GENERAL REQUIREMENTS FOR LOADING FACILITIES:** ~~All bulk terminals and plants must have submerged fill pipes in all tanks over 250 gallons (946 l) storing organic liquids, observe designated procedures and be equipped with applicable equipment as follows:~~

301.1 Vapor Pressure Information Required:

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- a. VP At 100°F:** Any person transferring an organic liquid from a bulk tank over 250 gallons capacity shall keep a hard-copy entry of the stored liquid's vapor pressure (VP) at one of the following temperatures, as applicable:
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- (1)** At either 100°F (37.8°C) or 68°F (20°C), if not heated over 100° by a heating device

(2) At its maximum temperature if heated by a heating device over 100°F.

301.2 No Liquid Leaks Or Excess Drainage From Disconnecting:

a. Loading With a Loading Arm: A person loading VOL into a delivery vessel from a loading rack using a loading arm with a dry-break connection, shall cease loading if the person notices that the vessel, its fittings, or any part of the loading rack is leaking VOL more than 3 drops per minute from any sector during loading. Loading shall not be continued if after attempted correction, more than 3 drops escape before 1 minute of loading has elapsed unless a proper containment system is used to capture and dispose of the leaking liquid. But under no condition shall a person load if the leak is a continuing or recurrent stream. Such person who notices any leak shall take action to inform the owner or operator of the loading rack of the leak situation at the earliest reasonable time.

b. Other Loading: Excepting dry-break loading arms, a person offloading a VOL from a bulk tank greater than 250 gallons into a delivery vessel, a tank or a container shall cease offloading if the person notices that the vessel, tank, or container or the loading system is leaking the liquid (more than 3 drops per minute) from any sector. Loading shall not be continued if after attempted correction, more than 3 drops escape before 1 minute of loading has elapsed unless a proper containment system is used to capture and dispose of the leaking liquid. But under no condition shall loading occur if the leak continues or recurs as a steady stream. Such person who notices any leak shall take action to explain the leak situation to the owner or operator of the tank within 24 hours.

c. No Excess Drainage on Disconnections of Dry Breaks: Both truck and loading rack operators shall cooperate to reduce excess disconnection drainage. (See §504 for measurement details.) Truck operators shall position delivery vessels and operate dry-break couplings and rack operators shall maintain rack functions and dry-break couplings such that:

(1) drainage immediately following any disconnection is never so large as either to exceed 30mL (2 tablespoons) volume or to wet an area of ground so wide that the wet area can entirely surround a 2-foot diameter circle; AND

(2) Drainage following three consecutive disconnections by the same arm is never so large that each of the 3 disconnections produces an escape either that exceeds 10 mL (2 teaspoons) or that wets an area so extensive that the wet area can entirely surround a 1 foot diameter circle.

d. Notify: A person shall not operate a dry-break loading arm from which s/he has just witnessed disconnect-drainage so large that s/he sees that it formed a wet area wider than 2 feet (or 2 shoe lengths) in all directions.

The loading arm shall not then be used to load until an authorized person has checked it and authorized its return to service.

- e. **Couplings That Are Not Dry-Break:** A person shall maintain and operate couplings used to onload or offload delivery vessels such that drainage immediately following any disconnection is never so large as either to exceed 10 mL volume or to wet an area of ground so wide that the wet area can entirely surround a 1-foot diameter circle. {See §504 for measurement details.}
- f. Measures shall be taken to prevent liquid leaks from the loading device when it is not in use, and drainage is complete before the loading device is disconnected.

301.3 Vapor Controls: The operator of a bulk facility that loads gasoline or oxygenate into delivery vessels shall:

- a. Ensure that loading into a delivery vessel does not proceed if pressure in the facility's rigid vapor-return piping in the loading area exceeds 18 inches of water column (33.6 mm Hg) when measured within 2 feet of the connection that receives the delivery vessel's vapor hose coupling.
- b. Equip vapor transfer lines with fittings that automatically and immediately close upon disconnection.
- c. At a Bulk Plant maintain potential leak sources vapor tight during loading or unloading operations, as demonstrated by the test procedure described in subsection 503.5 of this rule.
- d. At a Bulk Terminal maintain loading rack vapor recovery hoses in a vapor tight condition during loading operations, as demonstrated by the test procedure described in subsection 503.5 of this rule.
- e. The bulk facility owner/operator and the operator of the receiving vessel shall ensure that:
 - 1) The vapor line is connected before gasoline or oxygenate is transferred and before switch loading occurs.
 - 2) Loading is done in a manner that prevents overfills, f
- f. The person handling the loading of gasoline into a tank-truck shall prevent any liquid condensate that escapes when the vapor line is connected from reaching the ground/pavement, and shall dispose of any captured VOL in a proper manner.

301.4 Restrictions On Loading Venues: No motorized tank truck or its trailer shall onload gasoline in Maricopa County unless it is at a bulk plant or terminal that has a Maricopa County Air Pollution Control Permit for bulk gasoline loading.

~~301.1 **Bulk Terminals:** No person shall load organic liquids having a TVP of 1.5 psia (77.5 mm Hg) or greater into any delivery vessel from a stationary storage tank at a bulk terminal unless the vessel bears a current pressure test decal issued by the~~

~~Control Officer and the terminal uses a vapor collection/processing system which reduces the emissions of volatile organic compounds to not more than .08 pounds per 1000 gallons of such liquids transferred (10 grams per 1000 liters). Switch loading shall be subject to this standard. The terminal owner or operator and the operator of the receiving vessel shall act to ensure that the vapor line is connected before such liquids are transferred.~~

301.5 Bulk Terminals – Basics: No person shall load a VOL or switch load into any delivery vessel at a bulk terminal unless:

- a. The loading is done using an Emission Control System (ECS) that reduces the emissions of VOCs to not more than 0.08 pounds per 1000 gallons transferred (10 grams per 1000 liters).
- b. Bottom loading is the only method used to load delivery vessels.
- c. The delivery vessel has a current pressure-test decal.

301.2 Bulk Plant Tanks Over 250 Gallons (>946 L):

- a. **Transfer To Bulk Plant Tanks:** No person shall transfer gasoline from a delivery vessel into a bulk plant tank exceeding 250 gallons (946 L) capacity unless the delivery vessel bears a current county pressure test decal and uses a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pound of volatile organic compounds per 1000 gallons transferred (72 grams per 1000 liters).

301.6 Gasoline Bulk Plants – Basics:

- a. **Bottom-Loading Requirement:** A person loading gasoline at a bulk plant into a delivery vessel shall use bottom loading only, except for an exempt delivery vessel that carries valid documents confirming its exemption, per subsection 306.1 .
- b. **Vapor Control:** Every loading rack that contains a bottom loading arm shall be served by:
 - (1) an **accessible** vapor control system, and
 - (2) Such vapor control system shall include either an approved, vapor tight Stage 1 vapor recovery system or a gas-tight ECS; either shall be included in a valid Air Pollution Permit; both shall meet the emission limits of §301.7.
- c. **Mandatory Decal:** No person at a gasoline bulk plant shall load gasoline into a delivery vessel that lacks a decal, unless the vessel carries documentation showing that it meets the exemption requirements in subsection 306.1 .

d. Observe Transfer: Either the owner/operator of the bulk plant or the operators of delivery vessels shall observe all parts of the transfer.

e. Inspect Vapor Valves: Vapor valves shall be inspected weekly to determine if closure is complete and gaskets are intact; a record shall be made pursuant to subsection 501.

f. Arms Limit: No person shall add to the number of top-loading systems or arms at any bulk plant. A facility is limited to the number of such systems that were operational on November 21, 2000.

g. Contamination: Vapor balance systems shall be designed to prevent any vapors collected at one loading rack from passing to another loading rack.

b. Loading From Bulk Plant Tanks: ~~No person shall transfer gasoline from a bulk plant tank exceeding 250 gallons (946 l) into a delivery vessel unless both the loading rack and delivery vessel use a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pounds of volatile organic compounds per 1000 gallons loaded (72 grams per 1000 liters).~~

301.7 Gasoline Bulk Plant Equipment – Specifics:

a. Emission Limits: An operator must meet the following emissions limits during bottom-loading when bottom loading is the loading method required by a provision of this rule:

(1) A gasoline bulk plant shall limit emissions to less than 0.6 pound of VOCs per 1000 gallons transferred (72 g/1000 L) when bottom-loading, prior to {[date] 1 year after rule adoption}.

(2) After {[date] 1 year after rule adoption}, limit emissions when bottom-loading gasoline at a bulk plant to less than 0.5 pound of VOCs per 1000 gallons transferred (60 g/1000 L)

302.4 ~~Vapor transfer lines shall be equipped with fittings that are vapor tight and that automatically and immediately close upon disconnection. Vapor balance systems shall be designed to prevent any vapors collected at one loading rack from passing to another loading rack.~~

b. Vapor Valves: All vapor return lines from bulk tanks shall be equipped with spring loaded, vapor tight, poppetted dry break valves.

301.8 Dedicated Diesel/Jet Bulk Transfer Facility: Any loading rack at a dedicated diesel/jet loading facility that is neither served by an ECS nor manned by a facility employee during all loading times shall mitigate the VOC-emissions of prohibited switch loading by either the method of §301.8a or of §301.8b that follow.

a. Carbon Canister:

(1) Each coupling that receives a delivery vessels' vapor hose shall be connected to a carbon canister or equally effective device.

(2) Fit this device so that all displaced air and vapor from an onloading vessel passes through it.

(3) Check the device weekly for the presence of gasoline vapors. Replace a carbon canister before breakthrough of VOC occurs.

b. Detector/Shutout Device:

(1) Have a VOC detector that is activated at the start of loading and either:

(2) The detector system shuts off the loading if VOC is detected, in which case the system always prevents restarting and immediately sends an alert for a person employed by the owner/operator; OR

(3) If during a shift, such employee is always present within 100 feet of the loading rack, then (only during that shift) the shut off may be manual and the alert may be an alarm system which is so effective that alerting the employee is a certainty.

c. Signs: In all cases, maintain an easily read sign at each rack that is always lit (by sunlight and/or artificial means). The sign's contents shall prohibit any attempt at switch loading and shall list the consequences of switch loading.

302 OPERATING REQUIREMENTS FOR ECS AND RELATED VAPOR LOSS CONTROL DEVICES: The owner or operator of a vapor loss control device subject to this rule shall operate the device and ~~organic liquid~~ VOL transfer equipment as follows:

~~302.1 Loading shall be accomplished in a manner that prevents gauge pressure from exceeding 18 inches of water (33.6 mm Hg) and vacuum from exceeding six inches of water (11.2 mm Hg) in the tank truck. Each owner or operator of a facility shall act to ensure that any vapor recovery system required by this Rule 351 is connected between the delivery vessel and the storage tank during all organic liquid transfers.~~

302.1 Vapor and air displaced during loading operations that use an ECS shall be vented only to the ECS.

~~302.2 Loading shall be accomplished in a manner that prevents overfills, fugitive liquid leaks or excess organic liquid drainage. Owners or operators of bulk plants or operators of delivery vessels shall observe all parts of the transfer and shall discontinue transfer if any leaks are observed. Measures shall be taken to prevent liquid leaks from the loading device when it is not in use, and to complete drainage before the loading device is disconnected. During loading or unloading operations, potential leak sources shall be vapor tight as demonstrated by the test procedure described in Section 501 of this rule.~~

302.2 The ECS shall be operated so as to not exceed the vapor processing capacity.

~~302.3 Loading operations which use vapor collection/processing equipment shall be accomplished in such a manner that the displaced vapor and air will be vented only to the vapor collection/processing system, which shall be operated gas tight and in~~

~~a manner such that the vapor processing capacity is not exceeded. Diaphragms used in vapor storage tanks shall be maintained gas tight.~~

302.3 Diaphragms used in vapor storage tanks, including those serving an ECS, shall be ~~maintained~~ gas tight.

302.4 **Emission Control System (ECS) Requirements:**

a. An ECS' vapor processing subsystem shall be gas tight except for the designated exhaust, pursuant to subsections 301.4a and 301.5a.

b. Any tank gauging or sampling device that is vented to an ECS shall be equipped with a gas tight cover that shall be closed at all times, except during gauging or sampling procedures.

c. All ECS pressure vacuum valves shall be constructed and maintained in a gas tight condition, except when the operating pressure exceeds the valve release setting.

d. The loading rack operator at a bulk terminal shall be responsible for providing means for the Control Officer to use a pressure gauge that conforms to the vapor tightness testing procedure requirements of subsection 503.5 of this rule, without altering standard loading parameters such as flow-rate.

303 INSPECT, MONITOR, RECHECK

303.1 Inspect:

a. Monthly Inspection: The owner/operator shall perform monthly inspections, while vapor is being transferred, for liquid and vapor leaks and for faulty equipment. In these monthly inspections, detection methods incorporating sight, sound, smell and/or touch may be used. Refer to §501.4 for logging procedures.

b. Annual ECS Inspection With Device: Leak detection tests shall be conducted annually during June, July, or August by the owner of each ECS equipped bulk loading facility, or by a consultant at the expense of the owner. See Section 400 for details.

~~**303 REPAIR AND RETESTING REQUIREMENT:** Except as superseded by Division actions pursuant to the procedures of Rule 100, Section 501 ("Malfunctions"), the owner/operator of a vapor loss control device that exceeds the standards of this rule shall notify the Control Officer and observe the following time schedule in ending such exceedances:~~

~~**303.1** Concentrations at or above the lower explosive limit must be brought into compliance within 24 hours of detection.~~

~~303.2~~ ~~Leak concentrations exceeding 10,000 ppm but less than 50,000 ppm as methane for vapor collection/processing equipment subject to gas tight standard shall be brought into compliance within 5 days of detection.~~

303 303.2 REPAIR AND RETESTING REQUIREMENT: Except as superseded by Division actions pursuant to rules regarding emergencies and excess emissions, the owner/operator of a vapor loss control device that exceeds the standards of this rule shall notify the Control Officer and observe the following time schedule in correcting such exceedances:

a. Vapor-escape concentrations at or above the LEL (50,000 ppmv as methane) must be brought into compliance within 24 hours of detection.

b. Vapor-escape concentrations of less than the LEL (50,000 ppm as methane) that violate an applicable gas tight or vapor tight standard for vapor collection/processing shall be brought into compliance within 3 days of detection.

~~303.3~~ Except as the Control Officer otherwise specifies, a leak source subject to Sections 303.1 or 303.2 must be tested after presumed leak correction within 15 minutes of recommencing use; if leak standards are exceeded in this test, the use of the faulty equipment shall be discontinued within 15 minutes until correction is verified by retesting.

c. Except as the Control Officer otherwise specifies, a leak source subject to subsections 303.2a or 303.2b must be tested within 15 minutes of recommencing use after the correction is made. If leak standards are exceeded in this test, the operator shall stop using the faulty equipment within 15 minutes and not use it until correction is verified by retesting.

~~304 EQUIPMENT MAINTENANCE AND OPERATING PRACTICES:~~ All equipment associated with delivery and loading operations shall be maintained to be leak free, vapor tight and in good working order. Gasoline shall not be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation to the atmosphere. Purging of gasoline vapors and of JP-4 (jet petrol) vapors is prohibited.

304 LOADING EQUIPMENT MAINTENANCE AND OPERATING PRACTICES:

304.1 Integrity: All equipment associated with delivery and loading operations shall be maintained to be leak free, vapor tight and in good working order.

304.2 Discarding: VOLs and VOC-containing liquids shall not be poured on absorbent ground, discarded in sewers or storm drains, nor stored in uncovered containers. The exceptions are ground that has been specifically treated or overlaid to contain such liquids, releases to sewers and drains in accordance with all applicable release regulations, and containers of water already treated with petroleum/water separators that have a total VOC content of less than 100 milligrams per liter.

304.3 Purging: Purging of gasoline vapors is prohibited; however, this prohibition is lifted for purging situations that are accepted as good practice by an

American Petroleum Institute (API) publication and do not violate fire or safety codes. This exception also includes purging required to allow repairs, maintenance, or inspections.

304.4 Equipment Type:

- a. All loading equipment installed after 10/2/78 shall be bottom filling equipment.
- b. For bulk plants with equipment that is exempted by §306.1, one-for-one replacement of top-loading equipment (such as pumps) is allowed if the same type of equipment was in place before 10/2/78.

304.5 Emergency spill procedures:

All bulk facilities will have emergency spill procedures in place. All persons operating or using the loading equipment will be trained in these procedures.

305 RAILCAR OFF-LOADING:

305.1 Requirements to Minimize Emissions From A Railroad Tank Car (AKA Railcar):

- a. The transfer equipment used to unload railroad tankcars of any VOL, including alcohol, oxygenates, fuels, co-fuels, gasoline, and/or additives, shall be free of liquid leaks.
- b. A railroad tank car containing a VOL shall be continuously emptied once started.
- c. Hatches shall be closed promptly within 60 minutes upon completion of unloading.

305.2 Rail Car Activities with Vapor-Balance System:

- a. A tankcar used to receive and hold vapor displaced from gasoline storage while the tankcar is unloading shall be provided with fittings and procedures designed and operated to meet vapor tight provisions.
- b. **Sampling and gauging:** In a vapor balance system, after sampling and/or gauging of rail car contents is complete, the lidded port shall not be left uncovered for more than 2 minutes; either the tank car lid shall be promptly closed or the vapor balance connection shall be promptly attached.

305 306 EXEMPTIONS:

306.1 At a bulk plant built before October 2, 1978, vapor loss control specified in [subsection 301.5](#) is not required at the outloading rack when all of the following 4 subsections are complied with:

- a. After April 6, 1992, the bulk plant loads less than 120,000 gallons (454,800 L) of gasoline into delivery vessels in any consecutive 30-day period, and

- b. Outgoing gasoline is loaded using submerged fill only, and
- c. Either the owner/operator of the bulk plant or the owner/operator of the delivery vessel shall observe all parts of the transfer and shall discontinue the transfer if any leaks are observed, and
- d. Current records are kept of the amount of gasoline loaded and are readily accessible to the Division upon request for at least 5 years, and
- e. Any bulk plant shall become permanently subject to all of the provisions of §301.5 if it exceeds the 120,000 gal. threshold in §a preceding, and shall remain subject to these provisions even if its output later falls below the threshold.

The following subsection contents was moved to Rule 352 in 1999.

- ~~305.2 **Opening Hatches:** When VOC vapors from organic liquids are present within a non-exempt delivery vessel, authorized government agents as well as owners/operators and their contractors may open vapor containment equipment while performing operations required by Division rules or by other statutory entities, but shall be restricted as follows unless approved in advance by the Control Officer:~~
- ~~a. Wait at least 3 minutes after unloading is complete or delivery vessel has stopped before opening hatch or other vapor seal.~~
 - ~~b. Reclose hatch or other sealing device within 3 minutes of opening.~~
 - ~~c. Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec).~~
- 306.2 A bulk facility is not required to comply with the loading rack provisions of subsections 301.2 through 301.8 when a metering unit is recalibrating the loading rack.
- 306.3 **Farm Bulk Gasoline Tanks Under 1000 Gallon:** A bulk gasoline tank of less than 1000 gallons (3785 L) capacity that is located at a farm need not meet any of the bulk plant requirements of §301.6 or §301.7 during transfers out of it that are directly related to the operation of the farm, except that all parts of the transfer shall be observed by a person who is under the direction of the farm operator. The operator of the delivery vessel supplying such a farm tank is also so exempted during deliveries.
- 306.4 A tank truck may be bulk loaded with gasoline by a retail dispensing tank if all the following are true: [This is a brand new and tentative provision.]
- a. The tank truck does not and never had bottom fill equipment.
 - b. The tank truck has been fitted with a standard couple-able fitting that allows each gasoline compartment to be given pressure and vacuum tests as described in Rule 352.

- c. The truck has a Maricopa County APC pressure/vacuum test completion decal or equivalent documentation.
- d. The tank has one or more submerged fill tubes designed to accept and properly mate with any stage 2 nozzle that will be used to load, and
- e. When the tank is loaded at a retail dispensing station, loading is done in an otherwise vapor tight condition, with dome lids sealed, and Stage 2 vapor recovery functioning properly.
- f. The retail dispensing tank is stage 2 and has been tested and currently considered acceptable by the Arizona Dept. of Weights and Measures.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: By [date 4 months after adoption of this revision], the owner or operator of any loading facility that does not meet the requirements of subsection 301.7a shall submit an emission control plan and a schedule for achieving compliance with all requirements by [date: 12 months after revision adoption] to the Control Officer for approval

402 Vapor Source Disclosure: Upon request of the Control Officer or the operator of a terminal or bulk plant, the operator of a gasoline delivery vessel shall reveal their name, the name and location of the dispensing station to which the vessel made its most recent delivery, including the type of product(s) delivered, and the name of the person who made that previous delivery.

403 Monitoring ECS: Regarding the requirement that the ECS and all vapor piping that supplies it shall be gas tight, the gas-tight standard begins 3 feet down line from the final fitting or coupling on the vapor return piping in the loading area.

~~401 EQUIPMENT LEAKS:~~

~~401.1 The owner or operator shall also perform monthly inspections, while vapor is being transferred, for liquid and vapor leaks and for faulty equipment. In these monthly inspections detection methods incorporating sight, sound, smell and/or touch may be used.~~

~~401.2 A log book shall be used and shall be signed by the owner or operator at the completion of each monthly inspection for equipment leaks. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in gasoline service at the facility.~~

404 Leakage Assessment: Vapor leaks from liquids containing both VOC and non-VOC organic components shall be judged as if the leak were entirely a VOC.
For example, a vapor leak from a solution of acetone and gasoline that shows a concentration above the allowable threshold is an exceedance.

405 CORRECTIVE & DEFENSIVE ACTION FOR EXCESS VOL DRAINAGE AND EXCESS EMISSION

405.1 Capture And Proper Disposal That Minimizes Emissions:

- a. Capture escaped VOL in a container before it reaches the pavement/ground and then cover the container without delay, AND

b. Properly convey the contained VOL into a proper disposal system

c. A capture and disposal attempt per the foregoing subsections a and b is null and void if the behaviors and equipment used in the attempt result in evaporation of all or most of the captured VOL.

405.2 Sluicing/Washing: If the VOL reaches the ground/pavement, within 30 seconds after it is safe to do so begin a continuous EFFECTIVE and, ultimately, completed effort moving all accessible VOL into a subsurface containment system by using a water stream, with or without the help of a squeegee or other tools.

405.3 Procedures For Excess Emissions: For equipment that is properly maintained, establishment of an affirmative defense applicable for certain emissions such as excess liquid drainage, that are in excess of an emission standard or limitation may be possible; consult Maricopa County Air Pollution Control Rules.

SECTION 500 – MONITORING, RECORDKEEPING, AND TEST METHODS

501 RECORDKEEPING

501.1 Recordkeeping Basics: Keep records of inspections required by §303.1, indicating the date, hour, location, and description of equipment areas inspected, and the location of any findings requiring action or reinspection.

501.2 503 Records Retention: Records and information required by this rule shall be retained for at least ~~three~~ 5 years.

501.3 Recordkeeping Formats: A logbook or a computer file designed specifically to create hardcopy quickly, shall be used and shall be signed, on paper or electronically, by the owner or operator at the completion of each monthly inspection that is performed pursuant to §303.1. A section of the log shall contain a list, summary description, or diagram(s) that indicates the location of all equipment in gasoline service at the facility.

a. **Recordkeeping Formats for Annual Inspection:** A logbook or a computer file designed specifically to create hardcopy quickly, shall be used and shall be signed, on paper or electronically, by the owner or operator at the completion of each annual inspection that is performed pursuant to §303.1b.

b. The owner or operator shall annually have testing that is specified in §303.1 done according to procedures in subsection 503.5. Equipment shall conform to the specifications of applicable test methods cited in subsection 502. Prior to such testing, the owner shall notify the Control Officer of the date, time and location of the testing. The Control Officer or his representatives shall observe the tests at their discretion.

502 c. Compliance Inspections: The Control Officer, at any time, may monitor a delivery vessel vapor collection system, a loading rack's vapor loss control devices, a loading facility or a vapor collection/processing system for vapor leaks

by the methods described in §502.4 or §503 of this rule or by applicable EPA Reference Methods specified in §502.

502 504 — COMPLIANCE DETERMINATION - TEST METHODS SPECIFICATION: When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.

~~504.1 — Vapor Collection/Processing System:~~ Control efficiency of a vapor collection/processing system shall be determined according to EPA Reference Method 25A or Method 25B subsequent to the Control Officer's approval of the test protocol. Leak tests to verify a gas-tight state of the equipment associated with the vapor collection/processing device, including the piping outside of the loading area, shall be conducted according to EPA Reference Method 21. Gas volume flow rates shall be determined by Method 2B for a thermal oxidizer; otherwise, by Method 2A.

502.1 Control efficiency of an ECS shall be determined according to EPA Method 2A and either EPA Method 25A or 25B. EPA Method 2B shall also be used for vapor incineration devices. EPA Test Method 18 shall be used to determine the concentration of non-precursor organic compound.

502.2 The capture efficiency of an ECS shall be determined by mass balance in combination with flow rate determinations done in accordance with subsection 503.1e.

502.3 Ventilation rates shall be determined by EPA Methods 2, 2a, 2c, and 2d in 503.1a.

502.4 **Determination Of Gas-Tight Condition:** Leak tests to verify a gas-tight state of the equipment associated with an ECS, including the piping outside of the loading area, shall be conducted according to EPA Reference Method 21, per subsection 503.1c, except that the leak threshold shall be 1000 ppmv.

~~504.2~~ **502.5** **Vapor Balance And Loading Systems:** Vapor tightness shall be determined using the method described in ~~Section 501~~ subsection 503.5 of this rule.

~~504.3 — True Vapor Pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within ± 1 degree Fahrenheit or ± 0.5 degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.~~

502.6 **Vapor Pressure:**

a. **Total vapor pressure:**

(1) **Pure liquids:** The total vapor pressure of pure liquids (i.e., of a single chemical species) shall be determined by ASTM Method D2879-97, per subsection 503.4b.

(2) Petroleum Liquids: The total vapor pressure of non-gasoline VOLs derived from petroleum shall be determined by ASTM Method D5191-99, per subsection 503.4a.

~~504.4~~ ~~Reid Vapor Pressure shall be determined by ASTM Method D 323-82 or by ASTM Method D 519~~

b. Vapor Pressure of Gasoline:

(1) The vapor pressure of unoxxygenated gasoline, or gasoline with MTBE and no other oxygenates, shall be determined by ASTM Method D323, per subsection 503.3a.

(2) The vapor pressure of gasoline that is oxygenated with chemicals other than MTBE shall be determined by ASTM Method D4953-93, per subsection 503.3b.

502.7 The percentage of VOC in a material that is not gasoline or other petroleum product shall be determined either by SCAQMD Method 313 or by BAAQMD Method 31, per subsection 503.2.

503 Test Methods Adopted by Reference: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1999), as listed below, are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 503 are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

503.1 EPA Test Methods:

a. EPA Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate"; Method 2A, "Direct Measurement of Gas Volume Through Pipes and Small Ducts"; Method 2B, "Determination of Exhaust Gas Volume Flow Rate From Gasoline Vapor Incinerators"; Method 2C, "Determination of Stack Gas Velocity and Volumetric Flow rate in Small Stacks or Ducts", and Method 2D, "Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts" (40 CFR 60, Appendix A).

b. EPA Method 18, "Measurement of Gaseous Organic Compound Emissions by Gas Chromatography", and its submethods. (40 CFR 60, Appendix A).

c. EPA Reference Method 21, "Determination of Volatile Organic Compounds Leaks" (40 CFR 63.423)

d. EPA Method 25, "Determination of Total Gaseous Nonmethane Organic Emissions as Carbon", and its submethods. (40 CFR 60, Appendix A).

e. EPA Test Methods 204 ("Criteria For and Verification of a Permanent or Temporary Total Enclosure"), 204a, 204b, 204c, 204d, 204e, and 204f. (Appendix M, 40 CFR 51).

503.2 California Methods:

- a. Bay Area Air Quality Management District (BAAQMD) Method 31, "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings" (April 15, 1992).
- b. South Coast Air Quality Management District (SCAQMD) Method 313-91 (April 1997).

503.3 Gasoline Vapor Pressure:

- a. American Society for Testing and Materials (ASTM) Method D323-94, "Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)" (1994).
- b. ASTM Method D4953-93, "Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)" (1993).

503.4 Vapor Pressure of Non-gasoline Organic Liquids:

- a. ASTM Method D5191-99, Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method)" (1999).
- b. ASTM Method D2879-97, "Standard Test Method for Vapor Pressure - Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope" (1997).

~~501 LEAK DETECTION TEST PROCEDURE: During loading into or unloading out of delivery vessels, the peripheries of all potential sources of leakage at the loading facility are checked with a combustible gas detector or organic vapor analyzer (OVA) as follows:~~

503.5 Test Method And Equipment For Determining The Vapor Tightness Of

Loading Equipment: When the existence of vapor escapes from loading equipment is being determined, then during loading of a delivery vessel, the peripheries of potential leak sources and surfaces at the loading facility shall be checked with a combustible gas detector (CGD) or organic vapor analyzer (OVA).

- a. If the owner or operator is required by this rule to perform such a check, then all potential leak sources shall be checked excepting those requiring both unreasonable and uncustomary effort.
- b. The range of the instrument readout shall be selected such that the threshold limit value is no less than 19% of full scale or, if digital, no less than 19% of the upper limit of the most optimal range offered by the instrument in light of the tight-ness level being monitored/checked.

For example, if vapor-tightness is being checked with a CGD, the threshold limit value is 0.20 LEL. Therefore, full scale shall not be more than $0.20/0.19 \times \text{LEL} = 1.05 \text{ LEL}$.

501.1 Pressure: ~~A pressure tap shall be placed in the loading facility's vapor control system, as close as possible to the delivery vessel's tank. The pressure shall be recorded periodically during testing, at least once every minute. Instantaneous maximum pressure shall be recorded either automatically or by visual observation.~~

~~A pressure measurement device capable of measuring 20 inches (50.8 cm) of water pressure with a precision of 0.1 (2.5 mm) inch of water shall be calibrated. This device shall fit the tap and shall either be permanently installed or shall be kept available at all times at the facility.~~

- 501.1 a. Pressure:** A pressure tap that receives a portable pressure gauge, shall be placed in the loading facility's vapor control system, as close as possible to the connector that receives the delivery vessel's vapor hose. Using the tap/fitting is not required when the Control Officer is checking for vapor escapes from terminal equipment; a leak violation found by the Officer on terminal equipment is not nullified by the presence of extraordinary pressure. When the operator is monitoring for leaks in the vapor return system or on the delivery vessel, the pressure shall be recorded periodically during testing, at least once every minute. Instantaneous maximum pressure shall be recorded either automatically or by visual observation. A pressure measurement device capable of measuring at least 20 inches (50.8 cm) of water pressure with a precision of 0.1 inch (2.5 mm) of water shall be calibrated. This device shall fit the tap and shall either be permanently installed or kept available at all times at the facility.

- 501.2 Calibration:** ~~Within 4 hours prior to monitoring the combustible gas detector or OVA shall be calibrated with 10,600 ppm propane by volume in air for a 50 percent lower explosive limit (LEL) response.~~

- b. Calibration:** Unless the Control Officer or Division Manager give written exception, the following shall apply:

(1) The span gas concentration shall be within 10% of the applicable threshold. For example, 10,000 ppm methane is the OVA threshold for vapor tightness. The span gas must have a concentration somewhere between 9000 and 11,000 ppm by volume.

(2) Within 4 hours prior to monitoring, the CGD or OVA shall be calibrated.

(3) Alternatively, an instrument that has been calibrated more than 4 hours previous to a gas-tight or vapor-tight determination by an instrument vendor (e.g., who doesn't permit leasees to recalibrate the leased instrument) may be continued in use if it is checked with a zero gas and a span gas within the 4 hours previous to use and all the following are true:

- a)** The concentration of the calibration span-gas is between 45% and 220% of the threshold limit value. (For example, if vapor tightness is being determined with a CGD calibrated with propane [propane has an LEL of 21,200 ppm], the threshold limit of 20% of LEL is 4,240 ppm, and – therefore – the calibration span-gas must be no less than 1908 ppm [=0.45 x 4,240] propane and no more than 9328 ppm propane); AND

b) The reading of both the zero point and the reading of the span point does not vary by more than 2.0% of full scale for both zero and the certified concentration of the span gas with the instrument set in the range most optimal for the determination; AND

c) The following are recorded prior to instrument use and retained as permanent record:

i) time, date, operator's name, and instrument ID number.

ii) certified ppm of the span gas

iii) actual zero reading and actual span reading of the instrument.

(4) Background concentration: Note the VOC-concentration reading of the ambient air upwind at the nearest practicably accessible locale that is at least 15 paces (35 – 50 feet) from the point checked at a time as near to the time of measuring background VOC as is feasible . Make the readings at the following relative times:

(a) Within 5 minutes prior to commencing a vapor-escape search; and

(b) Within 5 minutes after ending a vapor-escape search.

(c) If time permits, within one minute of detecting a reading exceeding 20% LEL or 10,000 ppm as methane.

501.3 c. Probe Distance: The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.

501.4 d. Probe Movement: The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection in the area of a potential vapor source, the probe shall be positioned to locate the point of highest meter response, as indicated in subsection 503.5e.

~~**501.5 Probe Position:** The probe inlet shall be positioned in the path of the vapor flow from a leak such that the central axis of the probe tube inlet shall be positioned coaxial with the path of the most concentrated vapors.~~

e. Probe Position: The probe inlet shall be positioned in the path of the vapor flow from a potential VOC escape. To the degree that a trained tester can attain it in 5 seconds, the tester shall attempt to position the central axis of the probe's inlet orifice coaxially with the path of the most concentrated vapors. Generally, this involves positioning the end of the probe perpendicularly to the surface, with the center of the probe's orifice over the center of an opening at the surface that could be allowing an escape of vapor.

501.6 f. Wind: Wind shall be blocked as much as possible from the space being monitored. The annual leak detection test required ~~by Section 401 of an owner or operator pursuant to §501.6~~ shall be valid only when wind air speed in the space being monitored is 5 mph or less. If an owner/operator is having the test done to meet a requirement of this rule, the test is also invalid when the wind exceeds 20 miles per hour (29.0 feet per second or 9.0 meters per second) according to the weather bureau.

~~501.7 **Data Recording:** The highest detector reading and location for each incidence of leakage shall be recorded along with the date and time.~~

g. Data Recording: Record the highest detector reading and location for each location where the highest detector reading exceeds 2% LEL (or 1000 ppm as methane). If the exact point of origin of an escape was not determined, describe the area that produced the highest reading. Also, record the date and time. If no organic vapor is detected, record that fact, along with a description of the major structures that were tested for vapor escape. If there was indicator deflection but no reading exceeded 2% LEL (or 1000 ppm), then describe at least 1 location of one of the highest deflections/reading increases.

503.6 Use Of Detector In Suspected AVEC Situation: When in the course of using vapor escape detection equipment on the same tank, pipe system, and/or other contiguous VOC-containment, several potentially actionable vapor-escapes (PAVEs) are discovered (i.e., that register between 10 and 19.9% LEL {or 5,000 to 9,999 ppm on an OVA}) and the Control Office or owner/operator decides to ascertain if an AVEC is present, the shortest distance along the surface between PAVEs shall be measured. If 6 or more PAVEs are found, each of which is no more than 20 feet from another PAVE, this constitutes a **presumptive** Actionable Vapor Escape Cluster. An AVEC exists if a second set of readings of the vapor-escapes within the presumptive AVEC, all performed within one 30 minute period, show 10% LEL (5000 ppm) or

higher.
EXAMPLE #1: Probing of a rusty tank surface reveals 9 PAVEs each of which is within 20 feet of another PAVE. When measurements of the escapes are repeated, a task that takes 17 minutes, only 6 of them have LEL readings of 10% or more. However, all 6 of these active PAVEs are within 20 feet of another. Therefore, these 6 escapes constitute an AVEC.
EXAMPLE #2: A 90-foot run of pipe has 8 couplings (at 10 foot intervals) with a vapor-escape from each coupling. The CGD readings at 6 of the couplings are between 11 and 19 percent of LEL. A coupling at the end of the pipe run and a coupling in the middle have readings less than 10% of LEL. This is an **AVEC** because there are 6 qualifying readings and no more than 20 feet separates 2 adjacent qualifying vapor-escapes.

504 MEASUREMENT OF EXCESS DRAINAGE FROM DRY BREAK DISCONNECTION **{Reference definition 2 , and §301. }**

504.1 Measurement to determine if an escape exceeds 10 mL or 30 mL shall be done by capturing *as much of the escape as feasible* and physically measuring the volume of gasoline captured by transfer to a calibrated flask or other appropriate volume-measuring device. If the Control Officer uses this

method when persons in control of the loading operation were not already at the time of the Control Officer's arrival at the rack deploying an effective means of escape containment to prevent the escape from reaching the ground/pavement, the legal status shall be the same as if the escape reached the ground.

504.2 Measurement to determine if an escape to ground wets an area that in all directions exceeds a 1-foot diameter or 2-foot diameter circle, shall be done, respectively, with a 1-foot diameter circular disk or hoop and a 2-foot diameter circular disk or hoop. There shall be no diameter of any such disk or hoop that is less than 1-foot or 2-feet, respectively. It is an exceedance if there is any position within the wet area where the disk or hoop is entirely surrounded by area wet from the escape. (In other words, there are no unwetted areas touching any part of the outer perimeter and no unwetted areas within the circle.)

504.3 For an escape to be established as an exceedance using the foregoing methods, the Control Officer or Officer's representative shall be present during the time of the excess escape.

ATTACHMENT ALPHA This will be a procedure to establish through actual testing with gasoline and a variety of pavements, temperatures, and pouring heights the following tenets (that have already had preliminary verification):

- 1) under no condition can a spill of 10 mL of gasoline be physically capable of spreading so far on pavement/ground of a loading rack as to completely encompass a circle of 12 inch. diameter; and
- 2). Under no condition can a spill of 30 mL of gasoline be physically capable of spreading so far as to completely encompass a circle of 24 inches in diameter.